## AMENDMENT

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended)     A method of performing intelligent data pre-staging for a job submitted to a compute environment, the method comprising:

determining availability of compute resources <u>in a cluster or grid environment</u> including availability timeframes <u>of the compute resources</u> to process the submitted job;

determining data requirements for processing the job; [[and]]

determining a co-allocation in time reservation<u>; and</u>

<u>performing data pre-staging based on the co-allocation in time reservation and prior to processing the job in the compute environment.</u>

2. (Original)   The method of claim 1, wherein the data requirements relate to a quantity of data and a speed of migration of the data to the compute resources.

3. (Currently Amended)     The method of claim 1, wherein the data requirement for processing the job are at least one of: network information, network speed, faults, statistical fluctuation, delivered bandwidth by the network, ~~size, and any issues, you basically have to ramp up the initialize step, a data transfer step, and a prologue step, a termination step which completes the record and verifies the successful transfer of data~~ <u>and size</u>.

4. (Currently Amended)     The method of claim 1, wherein the compute resources must be available prior to the completion of [[the]] data ~~staging step~~ <u>pre-staging</u>.

5. (Currently Amended)     The method of claim 1, wherein determining the co-allocation in time reservation further comprises:

(1)     requesting the resources for [[the]] a first step in the job process;

(2)     calculating existing resource guarantees and reservations already in place to create an availability range list;

(3)     converting the availability range list into a start range list;

(4)     requesting another resource for a next step in the job process and returning to step (2) until all resources for all steps in the job process are requested;.

(5)     shifting [[the]] start ranges in the start range list by [[the]] an offset and performing an intersection operation on [[the]] a combination start range;

(6)     shifting [[it]] the start ranges back by [[the]] a negative of the offset, wherein [[the]] resulting information provides when to start each reservation;

(7)     presenting [[the]] to a user a final list of possible selectable starting times for a reservation to a user for selection; and

(8)     upon receiving a user selection of a reservation start time, shifting everything back and reserving [[he]] resources for [[the]] an appropriate start time.

6. (Original)   The method of claim 5, wherein the range list indicates all the availability time frames.

7. (Currently Amended)     A system for performing intelligent data pre-staging for a job submitted to a compute environment, the system comprising:

a processor;

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a module configured to <u>control the processor to</u> determine availability of compute

resources <u>in a cluster or grid environment</u> including availability timeframes to process the

submitted job;

a module configured to <u>control the processor to</u> determine data requirements for

processing the job; [[and]]

a module configured to determine a co-allocation in time reservation<u>; and</u>

<u>a module configured to control the processor to perform data pre-staging based on the co-</u>

<u>allocation in time reservation and prior to processing the job in the compute environment.</u>

8. (Original)   The system of claim 7, wherein the data requirements relate to a quantity of data

and a speed of migration of the data to the compute resources.

9. (Currently Amended)     The system of claim 7, wherein the data requirement for

processing the job are at least one of: network information, network speed, faults, statistical

fluctuation, delivered bandwidth by the network~~, size, and any issues, you basically have to ramp~~

~~up the initialize step, a data transfer step, and a prologue step, a termination step which~~

~~completes the record and verifies the successful transfer of data~~ <u>and size</u>.

10. (Currently Amended)     The system of claim 7, wherein the compute resources must be

available prior to the completion of [[the]] data ~~staging~~ <u>pre-staging</u>.

11. (Currently Amended)     The system of claim 7, wherein the module configured to <u>control</u>

<u>the processor to</u> determine the co-allocation in time reservation further:

(1)     requesting the resources for [[the]] <u>a</u> first step in the job process;

(2)     calculating existing resource guarantees and reservations already in place to create an availability range list;

(3)     converting the availability range list into a start range list;

(4)     requesting another resource <u>for a next step in the job process</u> and returning to step (2) <u>until all resources for all steps in the job process are requested;</u>.

(5)     shifting [[the]] start ranges <u>in the start range list</u> by [[the]] <u>an</u> offset and performing an intersection operation on [[the]] <u>a</u> combination start range;

(6)     shifting [[it]] <u>the start ranges</u> back by [[the]] <u>a</u> negative of the offset<u>, wherein</u> [[the]] resulting information provides when to start each reservation;

(7)     presenting [[the]] <u>to a user a</u> final list of ~~possible~~ <u>selectable</u> starting times for a reservation ~~to a user for selection~~; and

(8)     upon receiving a user selection of a reservation start time, shifting everything back and reserving [[he]] resources for [[the]] <u>an</u> appropriate start time.


12. (Original) The system of claim 11, wherein the range list indicates all the availability time frames.


13. (Currently Amended)     A computer-readable medium containing instructions for controlling a computing device to perform intelligent data pre-staging for a job submitted to a compute environment, the instructions comprising:

determining availability of compute resources <u>in a cluster or grid environment</u> including availability timeframes <u>of the compute resources</u> to process the submitted job;

determining data requirements for processing the job; [[and]]

determining a co-allocation in time reservation<u>; and</u>

performing data pre-staging based on the co-allocation in time reservation and prior to processing the job in the compute environment.

14. (Original) The computer-readable medium of claim 13, wherein the data requirements relate to a quantity of data and a speed of migration of the data to the compute resources.

15. (Currently Amended) The computer-readable medium of claim 13, wherein the data requirement for processing the job are at least one of: network information, network speed, faults, statistical fluctuation, delivered bandwidth by the network, size, and any issues, you basically have to ramp up the initialize step, a data transfer step, and a prologue step, a termination step which completes the record and verifies the successful transfer of data and size.

16. (Currently Amended) The computer-readable medium of claim 13, wherein the compute resources must be available prior to the completion of [[the]] data staging step pre-staging.

17. (Currently Amended) The computer-readable medium of claim 13, wherein the step of determining the co-allocation in time reservation further comprises:

(1) requesting the resources for [[the]] a first step in the job process;

(2) calculating existing resource guarantees and reservations already in place to create an availability range list;

(3) converting the availability range list into a start range list;

(4) requesting another resource for a next step in the job process and returning to step (2) until all resources for all steps in the job process are requested;.

(5)      shifting [[the]] start ranges <u>in the start range list</u> by [[the]] <u>an</u> offset and

performing an intersection operation on [[the]] <u>a</u> combination start range;

(6)      shifting [[it]] <u>the start ranges</u> back by [[the]] <u>a</u> negative of the offset<u>, wherein</u>

[[the]] resulting information provides when to start each reservation;

(7)      presenting [[the]] <u>to a user</u> a final list of ~~possible~~ <u>selectable</u> starting times for a

reservation ~~to a user for selection~~; and

(8)      upon receiving a user selection of a reservation start time, shifting everything

back and reserving [[he]] resources for [[the]] <u>an</u> appropriate start time.


18.  (Original) The computer-readable medium of claim 17, wherein the range list indicates all

the availability time frames.